

ARM Manus Research Station

Site Visit 0701M Report

Visit Duration: 29 January to 8 February 2006

Manus Island, Papua New Guinea

Manus Site Visit SV-0701M

Final Report

Site: Manus	Dates on Site: 29 January - 8 February 2007
Team Members: Krzysztof Krzton Troy Culkan Hastings Deering	Required Items & Other Actions: <ul style="list-style-type: none"> • NFS Storage Array HDs (6) (on site) • NFS Collector upgrade to RHE - HDs sent, LJ check shipping location • Hydrometer for checking GENSET batteries - LJ to ask KK (We can buy those from any automotive shop in Australia and ship them?) • BIOS batteries for DS collector and NFS server - LJ to ask Apple • DigiCORA III - Digi sent, LJ to check shipping • DC-to-DC converters - Apple to order; LJ to file BCR • Waterproof 110-V outlets - LJ to ping Apple • New IRT and cables - VM will ping Ron Reed • MPL (on site) • MWR (on site) • Arrange Hastings Deering visit - arranged • TSI - LJ to check shipping • MWR cable UV protectors - LJ to follow up
Tasks Summary: MWR replacement MPL replacement Digicora replacement TSI install Routine maintenance	Safety: <u>Major Hazards:</u> Caustic chemicals (KOH), Explosive gas (H2), AC electricity <u>Hazard Controls:</u> BOM Electrolyser Handbook, BoM Electrolyzer Operations/Maintenance Training, ASNZS 4836/2001-Safe Working on LV Electrical Installations, 2-man rule When replacing items (e.g., desiccant, filters, etc.), record and report the quantity of spares left on site.

SITE TASKS

High priority / usually non-routine		Low priority / usually routine		Completed
Priority	System	Date Completed (dd/Month)	Service Time (hours)	Tasks
For each priority item insert new line (row) for each date/time entry				
1	MWR			Replace impulse connectors with MS connectors at end of permanent cables
		30-Jan		Completed
1	MWR			Replace instrument with new MWR and install appropriate configuration file on computer
		30-Jan		MWR installed, mentor informed. Mentor needs to update the config file. Larry - could you please follow up with Maria.
		2-Feb		Awaiting feedback from mentor. Maria advised that instrument needs to run for couple of days for radiometer to collect enough tip curves to come up with its own calibration coefficients.
		8-Feb		Still awaiting feedback from mentor.
		9-Feb		Maria Ceddedu advised via email that data looks ok. Completed
2	MPL			Install new MPL
		30-Jan		Equipment checked, planning installation
		1-Feb		Installation completed. Waiting for collections and ingest to be enabled. Observer training in progress. Telescope temp probe found damaged on closer inspection. It didn't appear to be sufficiently protected when in transit. Spare probe and small tube of Araldite will be required to address this. This repair can be carried out by observers if urgent.
		2-Feb		Ron Reed will enable collections and ingest tomorrow morning

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		3-Feb		Replaced window heater, removed non-working dehumidifier unit. Window cleaned but requires replacement due to number of small paint dots.
		4-Feb		MPLPOL collection working, but ingest is not. Notified support@sgpops.arm.gov.
		7-Feb		Completed. Working well. Waiting for confirmation from mentor.
		8-Feb		Mentor advised that instruments operates within specifications.
3	TSI			Install ex-Darwin TSI at Manus
		30-Jan		Completed.TSI installed
		1-Feb		Removed U10 chip , checked heaters, realigned the mirror. Installed dessicant as per mentors advice. Camera focus checked
		6-Feb		Shown Hymson how to wax mirror. Advised that mirror needs cleaning during daily rounds.
4	H2GEN			Repair H2GEN
		30-Jan		In progress. WTP circulation pump replaced. Hogen control card replaced 30/1. Hydrogen drier removed for refurbishment.
		31-Jan		Drier refurbished 31/1. Feed stage pump pressure switch adjusted 31/1. Drier reinstalled.
		1-Feb		Testing operation, modified setup parameters to enable restart at 180 psi. HOGEN gas used for ballon filling.
		2-Feb		Hogen 2 yearly service in progress.
		3-Feb		Water Treatment Plant filters replacement
		4-Feb		Completed. Monitoring operation.
		5-Feb		Leak testing HOGEN, piping, vessels, Electrolyser and Electrolyser storage vessels. Refurbished old Condensate Drain
		6-Feb		Refurbished Bekomat drain. Preparing resupply list for spares and consumables. Replaced WTP tank level switch that failed.
		8-Feb		Operation checked. Configuration file saved.
4	H2GEN			Repair Electrolyser
		29-Jan		Completed. Operations checked.
		3-Feb		Specific gravity of the cells checked. Tested. Instructed observers to use as a HOGEN backup
		4-Feb		Investigating intermittent current dropout fault. Replaced 2 of 250A fuses (no more spares on site). Monitoring operation of the plant.
		6-Feb		Preparing resupply list for spares and consumables
5	MMCR			Troubleshoot MMCR UPS
		1-Feb		MMCR battery replaced. UPS checked. Operates fine.
6	GENSET			Oversee routine maintenance by Hastings Deering
		31-Jan		Hasting Deering technician started servicing the Genset today

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Low priority / usually routine

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		1-Feb		Genset servicing complete. Report provided (paper copy). Hymson volunteered to convert it to electronic copy and will email it.
7	BBSS			Replace DigiCORA II w/ new DigiCORA III (if III arrives)
		30-Jan		Robert Thompson went to see today Dick Pearse to follow up on shipment of Digicora hardware.
		1-Feb		Hymson went to check on Digicora shipment status. Apparently shipment has not been processed by customs yet. Waiting
		2-Feb		Digicora 3 equipment on site. Picked up from Air Niugini in the afternoon.
		3-Feb		Equipment checked, planning installation
		4-Feb		Installation in progress
		5-Feb		Investigation of the cause of poor telemetry reception on Digicora 3 system compared to Digicora 2. Digicora 3 SPS311 unit requires RB31 UHF antenna. Antenna on site is a RB21. In order to use RB21 with Digicora 3, electronics inside it need to be changed
		6-Feb		Postpone till next visit. RB21 antenna needs to be upgraded for installation to be completed. Mentor is following up on the required items. Site will revert to use of Digicora 2 system
7	BBSS			Train Observers on DigiCORA III operations (if III arrives)
		5-Feb		Training commenced but due to poor performance of Digicora unable to continue. Observers were demonstrated the Digicora 3 launch procedure
8	DS			Upgrade NFS Storage Array HDs (if HDs arrive)
		2-Feb		Completed. COMMS outage due to a wrong thing being turned off remotely. APC switch connections to be verified and sent to Ron Reed to ensure this doesn't occur in future.
8	DS			Verify and document the connections on Data Rack APC switch
		5-Feb		Completed. Connections documented, copy sent to R. Reed
9	SDL			Install new SDL (can be done remotely) - BOM
		31-Jan		Completed.
9	SDL			Train Observers on new SDL
		31-Jan		66.6% complete - Hymson still to be trained
		1-Feb		All observers trained. Refresher training will be done once again before we leave.
		8-Feb		Refresher training provided. Completed
9	COMM			Troubleshoot phone abuse controls w/ Hymson (VOIP and landline)
		3-Feb		Nera sat phone is restricted to dialing numbers listed in its phone books. Operation verified. VOIP potential abuse will be addressed by installing a PABX in Darwin. Local call/PNG wide call solution needs to be devised on return to Darwin.
		9-Feb		Discussed phone abuse controls with Hymson. Completed for this trip.
10	AWS			Calibrate AWS per BOM procedures
		1-Feb		Postpone. No cal gear available on site. Cal gear from Nauru arrived at Darwin yesterday.
11	CEIL			Clean window and inspect for damage and tear

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		7-Feb		Ceilometer window cleaned, inspected for damage/wear, photos taken
11	LGR			Modify DC power supply to loggers (pending LJ BCR) - Apple to order higher quality DC-to-DC converters - possibly postpone
		3-Feb		Hardware not supplied yet. Postpone till next site visit.
11	MWR			Upgrade/install waterproof 110-V outlet at MWR stand - Apple to order outlets - possibly postpone
		3-Feb		Hardware not supplied yet. Postpone till next site visit.
11	IRT			Install new IRT PC and data cable - IRT PC and cable to ship from SGP (awaiting Ron Reed) - possibly postpone
		3-Feb		Hardware not supplied yet. Postpone till next site visit.
11	PWR			Survey power strips for hazard(i.e., >8amp, connected in series, etc.)
		3-Feb		Ongoing. Needs checking every trip.
11	OTHER			Install Education Kiosk in E-van for testing
		31-Jan		Dick Pearce will follow up on kiosk battery shipment. Batteries are in Lae at present. Kiosk unpacked and installed in ISS van. Australian style double power point installed in the van. On initial inspection; touch screen driver problems, UPS software not installed. Kiosk program operates fine. Waiting for new batteries before UPS can be configured. 2 PCs, printers and UPSs stored in X van moved to ISS van to keep them together with kiosk.
		2-Feb		Batteries are in Lae. Dick Pearce is organizing shipment to Lorengau
		6-Feb		Advised by Dick Pearce that batteries will not arrive in time for us to install them. Was able to test the unit with currently installed battery by charging it overnight. Kiosk appears to operate ok but battery needs changing before it is deployed in more permanent location
		8-Feb		Completed. Kiosk installed for testing. UPS battery will need to be changed at next opportunity
11	OTHER			Replace instrument PCs w/ new Dell GX620s - postpone till CorePC developed
		3-Feb		Postpone until next trip.
11	POWER			Investigate connecting Liebert power supply in E-Van
		3-Feb		Electrician will be required to install cabling necessary for Lieber UPS in E-Van to supply power to "UPS" marked outlets and eliminate 2 small UPSs currently used. Outlets and plugs required for this modification stored in D-Van. Completed.
11	SKYRAD			SKYRAD radiometers fans not working. Investigate and repair
		31-Jan		Completed
		3-Feb		Skyrad fans replaced with clean working units. Dessicant replaced. Condensation found in BW radiometer
		5-Feb		Dessicant changed on BW radimeter
11	GNDRAD			Change dessicant
		5-Feb		Dessicant changed
11	ORG			Change dessicant, seal the unit to prevent water ingress.

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		5-Feb		Water found inside ORG. Dried, dessciant changed, unit sealed to prevent moisture ingress
11	DS			Change out BIOS batteries in collector and NFS server, and then reset BIOS
				Not sure if this needs to be done. Clarification required from R. Reed
		8-Feb		Advised by R. Reed that this task is not required. Batteries to be replaced a year from now (Feb 2008). Completed for this Site
11	GENSET			250-hr maintenance by H-D
		31-Jan		In progress
		1-Feb		Completed
11	GENSET			Check 12-V batteries with hydrometer
		31-Jan		Done today by mechanic. Provided mechanic with distilled water from HOGEN WTP.
	SHIPPING			List items to be shipped following visit
				Replaced MWR to SGP - done
				Replaced MPL to SGP

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	WATER			Investigate water pump cycling.
		5-Feb		Pump replaced with spare unit. Will be sent to Darwin for refurbishment. Spare pump on site.
	ES&H	5-Feb		Defibrillator battery changed. Pads changed (expiry date: April 2007). Observers provided with refresher training on the use of defibrillator.
	ES&H	6-Feb		Assembled and demonstrated safe use of newly supplied brushcutter
	ES&H	6-Feb		Demonstrated safe use of ballon piercing rod.
	FUTURE NEEDS			List items needed for future visits (spares, etc.)
				Calibration gas for gas sensors - already sent from Australia
				Australian extension cord and an RCD protected power board
				metric open ended spanner set
				Thread tape (teflon)
				round and half round metal files
				driver bits - Philips and flat head for cordless drill
				18 V DeWalt cordless drill
				Heater/blower for MPL window
				dehumidifier for MPL window (may not be required, split system AC units dry the air)
				new mpl window - old one has number of small paint dots on it.
				conduit; flexible 20mm , 1 coil, some 20mm conduit glands
				container for storing electrolyser KOH solution. 20l capacity
				2 hydrometers
				water container - to store emergency drinking water which can be filtered using Hogen Water treatment plant.
				H2 analyser for Electrolyser - sent from Darwin already, on its way
				electrolyser and Hogen spares - to be ordered from BoM store
				spare battery and pads for defibrylator.
				molecular sieve 0.4/2mm 4161GC for Digicora GC unit
				speakerphone for Manus - required for teleconferencing. Volume on the current one is very low and it cannot be adjusted.
				Gumboots for observers using brushcutter/lawnmowers
				Safety boots for observers
				Can of workshop soap, large bottle of sunscreen.
				Wire flyscreen and flyscreen cord
		12-Feb		Electric kettle -110 V.

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	QUERIES			
		2-Feb		Nera Satellite Phone received in Digicora 3 shipment. Is it to be left on site as spare or is it here for another purpose?
		6-Feb		Nera satellite phone returned to SGP - it was sent to Manus by mistake.
	OTHER			
		31-Jan		Approached by the observers to assist local woman, who was expecting a baby, with delivery to local hospital. Troy assisted as an midwife/ ambulance driver. Patient delivered safely to hospital. Troy was offered future naming rights of the soon to be newborn.
		2-Feb		Advised by observers that parents have decided to name the baby Troy